

IN THE CLAIMS:

Please amend the claims to read as follows.

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1. (currently amended) A method of manufacturing a semiconductor device of laminating to form having a dielectric capacitor including a bottom electrode, a dielectric layer and a top electrode on an underlying substrate having a three-dimensional structure ~~in which,~~ comprising:

providing a substrate having an insulation layer provided thereon, the insulation layer having a hole formed therein;

forming a bottom electrode on at least a side wall of the insulation layer in the hole;

providing a dielectric layer on the bottom electrode; and

forming a top electrode on the dielectric layer;

wherein the bottom electrode and the top electrode are formed by ~~an~~ a metalorganic chemical vapor deposition process at 180°C or higher and 250°C or lower using a cyclopentadienyl complex as a precursor.

2. (currently amended) A method of manufacturing a semiconductor device as defined in claim 1, wherein one of O₂, H₂, N₂O, O₃, CO and CO₂ is used as a reaction gas and the volume ratio of the reaction gas to a carrier gas is 1% or more.

3. (canceled)

4. (canceled)

5. (currently amended) A method of manufacturing a semiconductor device as defined in claim 1 or 2~~any one of claims 1 to 4~~, wherein each of the top electrode and the bottom electrode comprises Ru, RuO₂ or a mixture of Ru and RuO₂.

6. (canceled)

7. (canceled)

8. (currently amended) A method of manufacturing a semiconductor device of ~~laminating to form a bottom electrode, a dielectric and a top electrode on a substrate having a three dimensional structure in which,~~

~~the bottom electrode and the top electrode are formed by using a starting precursor in which a starting metalorganic material containing a~~ as defined in claim 1 or 2, wherein the cyclopentadienyl complex is dissolved in tetrahydrofuran, toluene, hexane or octane an organic solvent having a solubility for the starting precursor of 0.05 mol/l or more, by a liquid carrying and evaporation, metalorganic chemical vapor deposition process.

9. (canceled)

10. (canceled)

11. (canceled)

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Cont.

12. (currently amended) A method of manufacturing a semiconductor device as defined in claim 8 ~~or 10~~, wherein the organic solvent is selected from the group consisting of tetrahydrofuran, the toluene, the hexane or the and octane is a solvent having a solubility for the starting precursor of 0.05 mol/l or more.

13. (canceled)

14. (canceled)

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Please add the following new claims to the application:

15. (new) A method of manufacturing a semiconductor device as defined in claim 1, wherein said dielectric layer is formed by a metalorganic chemical vapor deposition process.

16. (New) A method of manufacturing a semiconductor device as defined in claim 1, wherein the bottom electrode is formed homogenously on the side wall of the insulation layer in the hole and on the bottom of the hole.

17. (new) A method of manufacturing a semiconductor device as defined in claim 16, wherein the hole has an aspect ratio of depth/diameter of 3 or more.
